SERVICE MANUAL

SANYO

STEREO CASSETTE PLAYER

MGP17

EUROPE

142 429 35 (Black)
142 429 36 (White)

SPECIFICATIONS

Power Source	
DC	3V
(UM-3, HP 7, AA Cell, Mignonzelle, R 6) x 2	
Output Power	25mW x 2 (Max.)
Current Consumption (at Vol. Min.)	
Playback mode	170mA
Fast Forward	240mA
Rewind mode	240mA
Tape Speed	1-7/8ips. ±3%
Fast Forward	160sec. (with C-60)
Rewind Time	160sec. (with C-60)
Torque	
Playback	32 ~ 60g-cm
Fast Forward/Rewind	more than 50g-cm
Wow & Flutter	0.5%, WRMS
Frequency Response	63Hz ~ 10,000Hz
Graphic EQ. Control (100Hz/1kHz/10kHz)	
+10	+8dB ±3dB
−10	-8dB ±3dB
Signal to Noise Ratio	more than 43dB
Crosstalk	
Track to Track	more than 50dB
Channel Separation (with Fe_2O_3)	more than 30dB
Hum & Noise (at Vol. Min.)	−65dBs
Terminal Impedance	
Headphone	32Ω
Dimensions	86(W) x 120(H) x 36(D)mm
Weight (w/o battery)	225g (Approx.)

–Specifications subject to change without notice.–

WM-17085

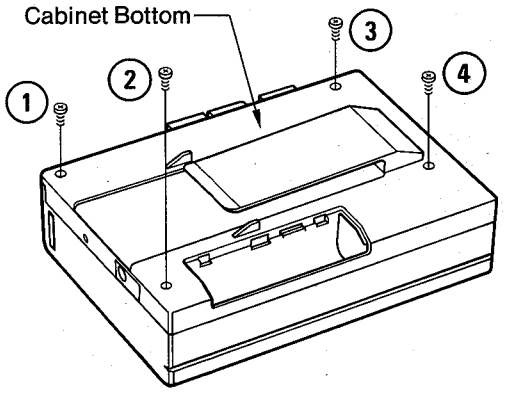
DISASSEMBLY INSTRUCTIONS

GENERAL REMARKS

- Before disassembling the unit, spread a soft rubber mat or a cloth on the workbench to avoid scratches and grease stains.
- Do not use a material which is likely to cause static electricity because transistors and ICs may be easily damaged by it.
- Reassemble the unit, noting the kinds of screws, the soldering and arrangement of the leads. Refer to "Circuit Diagram and Exploded Views" for correct assembly.
- Before disassembling the unit, take out the cassette tape and the batteries.

CABINET BOTTOM REMOVAL

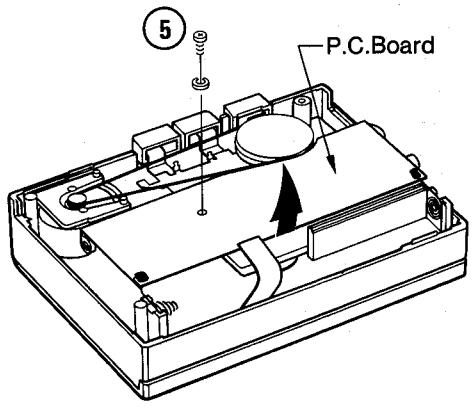
1. Open the Cassette Compartment Lid by pressing the Stop Button and take out the cassette tape from the compartment.
2. Turn over the unit with the front side down on a soft surface and remove the Battery Compartment Lid. Then, remove the batteries.
3. Remove the four screws (1 ~ 4) fastening the Cabinet Bottom and lift the Cabinet Bottom away from the unit.



4. Reassemble in reverse order.

P.C.BOARD REMOVAL

1. Remove the Cabinet Bottom by following the instructions for the "Cabinet Bottom Removal".
2. Unsolder the FPC of the Graphic Equalizer from the P.C.Board.
   Remove the screw (5) fastening the P.C.Board.
3. Turn over the P.C.Board in the direction of the arrow with caution not to damage the Playback Head and Motor leads.

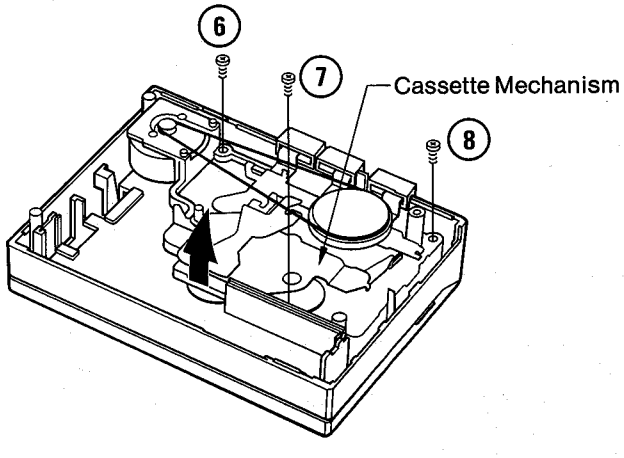


4. Reassemble in reverse order.

NOTE:
When mounting the Amplifier P.C.Board, check to see that the power switch operates correctly by pressing the Play Button.

CASSETTE MECHANISM REMOVAL

1. Remove the P.C.Board by following the instructions for "Cabinet Bottom Removal" and "P.C.Board Removal".
2. Remove the three screww (6 ~ 8) holding the Cassette Mechanism.



3. To detach the Cassette Mechanism, lift the Mechanism in the direction of the arrow.
4. Reassemble in reverse order.

ADJUSTMENT PROCEDURES

GENERAL REMARKS

- Before adjusting the mechanism of this unit, wipe the tape contacting surfaces of the Head, Pinch Roller and Capstan, and the surfaces of the driving parts such as the Drive Belt, Take-up Belt, Flywheel and Pulley with a soft cloth soaked in alcohol. Trouble may occur because of oil and grease stains.

- Carefully handle the belt because grease easily attaches to it. Then, check the used rubber parts. If the rubber has deteriorated or is scratched, replace the parts with new ones.

EQUIPMENT REQUIRED

- Frequency Counter
- Dualtrace Oscilloscope
- VTVM (2 sets)
- Dummy Load (32Ω)
- Test Tapes
  - ‡ 3kHz test tape (Example: TEAC MTT-111) for the Tape Speed Adjustment
  - ‡ 10kHz test tape (Example: TEAC MTT-114) for the Head Azimuth Adjustment
- Alignment Tool

NOTE:

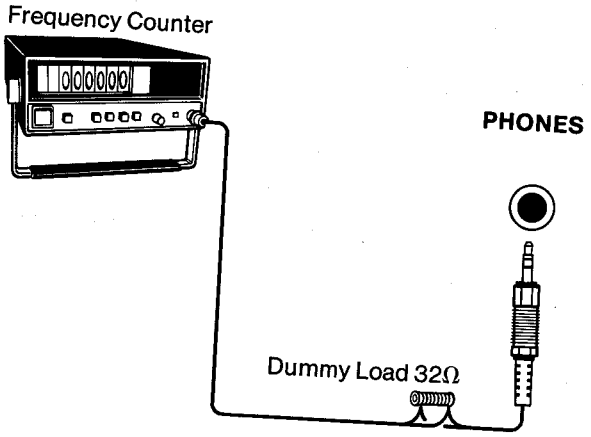
Before the Electrical Adjustments, set the Switch and Control as follows:

- ‡ Volume Control ..... As desired
- ‡ Graphic EQ. Controls ..... 0 (click position)
- ‡ Install new two batteries to the battery compartment for the adjustment.

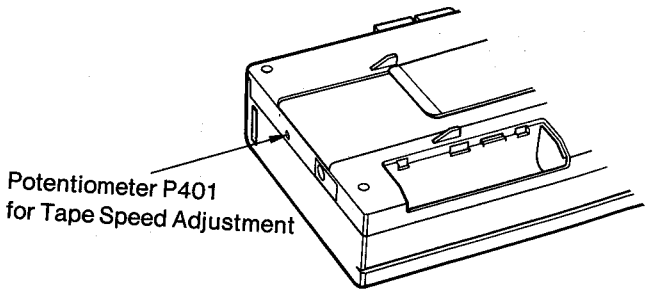
TAPE SPEED ADJUSTMENT

1. Remove the Battery Compartment Lid and take out the batteries from the compartment, and connect the regulated DC 3V power supply to the Ext. Power Jack.

2. Connect a frequency counter to the Headphones Jack as illustrated and insert a 3kHz test tape (Example: TEAC MTT-111) into the Cassette Compartment.

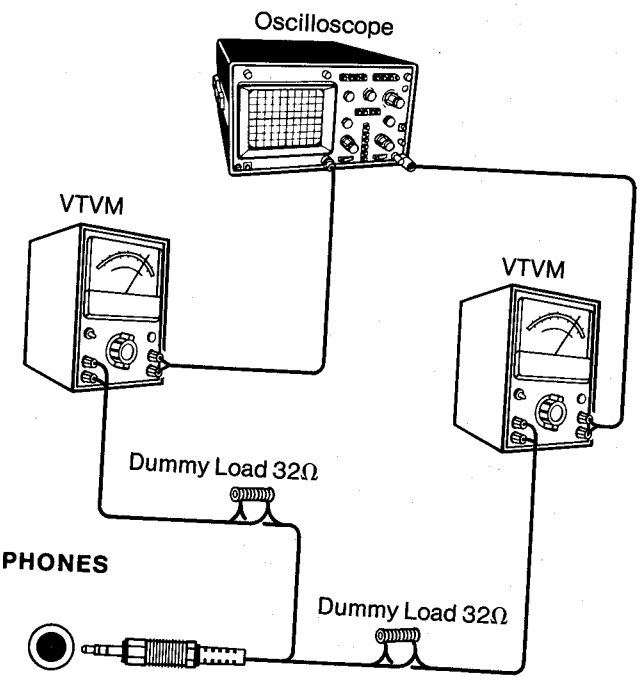


3. While playing back the test tape, adjust the tape speed by turning the potentiometer (P401) on the P.C.Board with an alignment tool until the frequency counter reads 3kHz.



HEAD AZIMUTH ADJUSTMENT

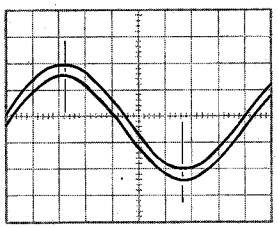
1. Connect two VTVMs and a dualtrace oscilloscope to the Headphone Jack as illustrated.
   Set the oscilloscope as follows:
   - ‡ MODE ..... CHOP (chopped)
   - ‡ SOURCE ..... INT (internal), CH1 or CH2
   - ‡ SWEEP MODE ..... AUTO (automatic)

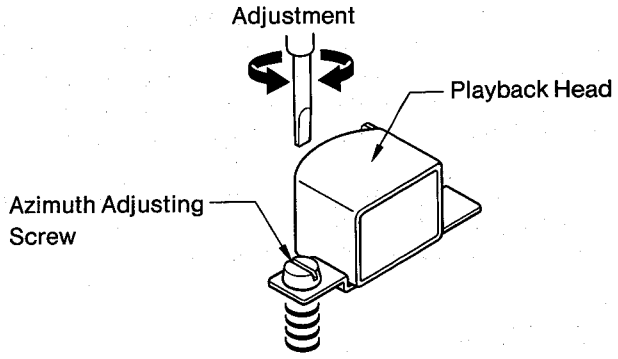


2. Insert a 10kHz test tape (Example: TEAC MTT-114) into the Cassette Compartment and play it back.

ADJUSTMENT PROCEDURES (Continued)

3. While playing back the test tape, slowly turn the azimuth adjusting screw until the amplitudes of both channel output waveforms become maximum and the waveforms overlap as well as possible as illustrated.
   Then the VTVMs must be read at the maximum as much as possible.





4. After the adjustment, secure the adjusting screw with paint or glue.

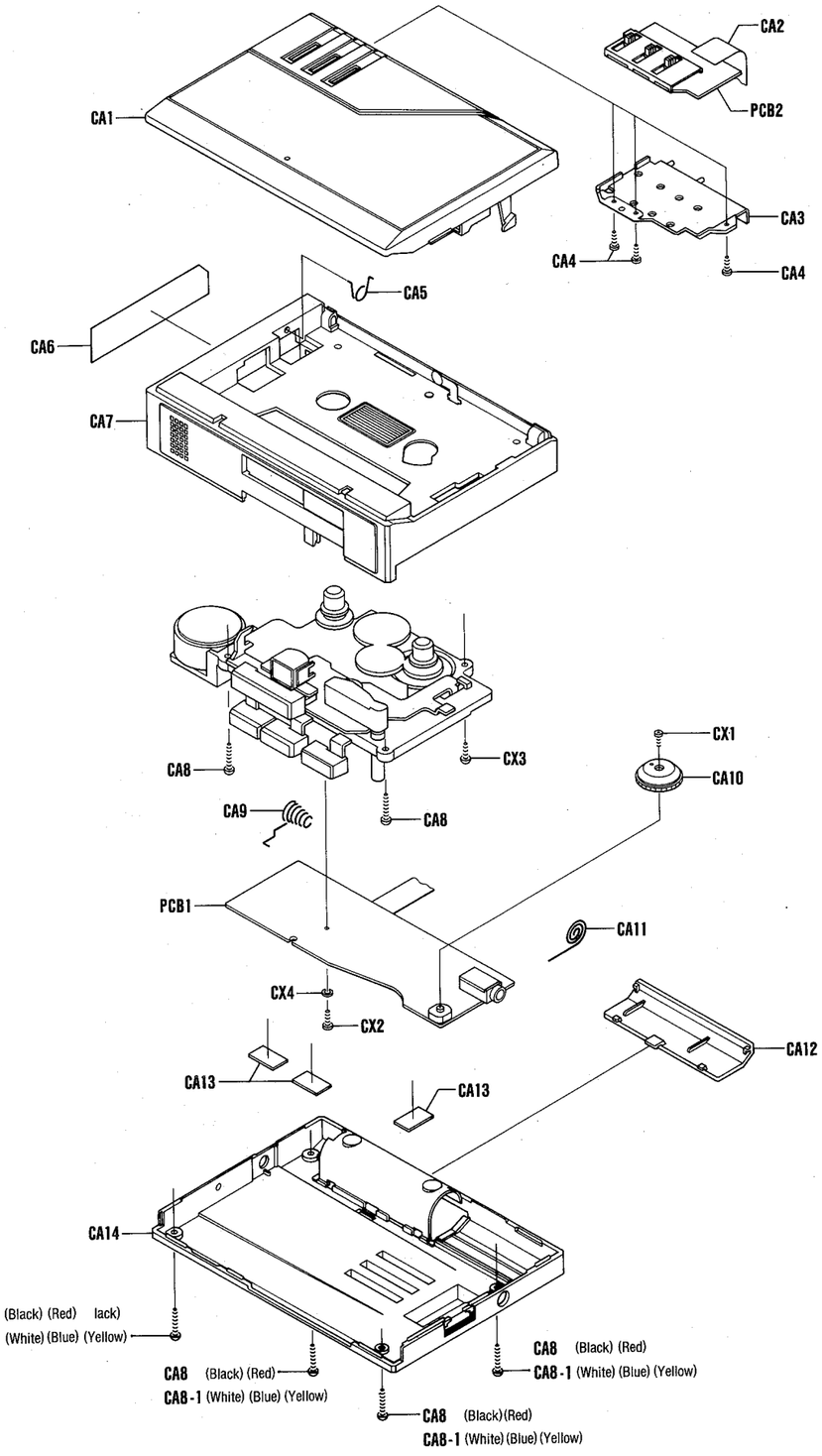
PARTS LIST

Ref. No.	Part No.	Description	Q'ty
	PACKAGE		
	141-6-1419-88602	Individual Carton	1
	141-6-1469-13300	Case Styrofoam	1
	141-6-2519-12090	Poly Cover	1
	141-6-3919-52100	Plain Pad	1
	141-6-4559-03300	Serial No. Sheet	3
	141-6-4559-03979	Label Color BK (Black)	1
	141-6-4559-03952	Label Color W (White)	1
	ACCESSORIES		
‡	4-1529-70671	Headphones	1
	142-6-4119-32947	Instruction Book	1
	CABINET		
CA1	141-0-1249-40002	Lid Cassette Assy (Black)	1
CA1	141-0-1249-40003	Lid Cassette Assy (White)	1
CA2	4-2262-25860	FPC, Equalizer	1
CA3	141-2-3659-21900	Holder Equalizer (Black)	1
CA3	141-2-3659-21901	Holder Equalizer (White)	1
CA4	141-2-4219-21700	Screw, +M1.4x4.0	3
CA5	141-2-8549-17200	Spring Eject	1
CA6	141-2-1419-18615	Rating Plate	1
CA7	141-0-1129-18300	Cabinet Top Assy	1

Ref. No.	Part No.	Description	Q'ty
CA8	141-2-4219-30001	Screw, +M1.7x10.0 (Black)	6
CA8	141-2-4219-30001	Screw, +M1.7x10.0 (White)	2
CA8-1	141-2-4219-30002	Screw, +M1.7x10.0 (White)	4
CA9	141-2-3829-45200	Spring Battery	1
CA10	141-2-1639-63200	Knob Volume	1
CA11	141-2-3829-45100	Spring Battery Anode	1
CA12	141-2-1339-38000	Lid Battery (Black)	1
CA12	141-2-1339-38003	Lid Battery (White)	1
CA13	141-2-4419-20100	Sheet	3
CA14	141-2-1129-41403	Cabinet Bottom (Black)	1
CA14	141-2-1129-41404	Cabinet Bottom (White)	1
CX1	128-3-1314-04018	PI Screw-3, Pan Hd., +M1.4x4.0	1
CX2	128-3-1317-04014	PI Screw-3, Pan Hd., +M1.7x4.0	1
CX3	143-3-1302-00618	Screw, Pan Hd. Tapping-B, +M2.0x6	1
CX4	110-3-2101-70013	Spring Washer-2, M1.7	1
PCB1	141-0-1939-14001	Amplifier P.C.B. Assy	1
PCB2	141-0-1939-14130	Graphic Equalizer P.C.B. Assy	1

NOTE:
1. Parts order must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and resistors must be multiple of 10 pcs.

CABINET EXPLODED VIEW

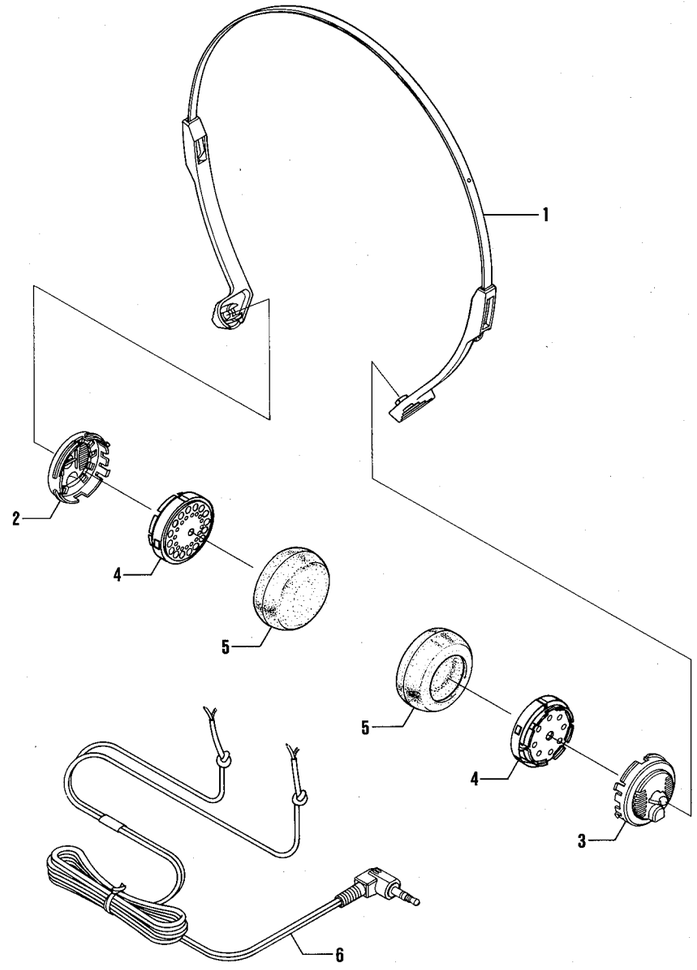


HEADPHONES PARTS LIST

Ref. No.	Part No.	Description	Q'ty
	HEADPHONES		
‡	4-1529-70671	Headphones	1
1	141-0-1769-01701	Headphone Band Assy	1
2	141-2-1259-10300	Housing Left	1
3	141-2-1259-10400	Housing Right	1
4	4-1529-70680	Ear Speaker	2
5	141-2-4469-55800	Ear Pad	2
6	4-2369-76090	Plug Cord	1

NOTES:
1. Parts order must contain Model Number, Part Number and Description.

HEADPHONES EXPLODED VIEW



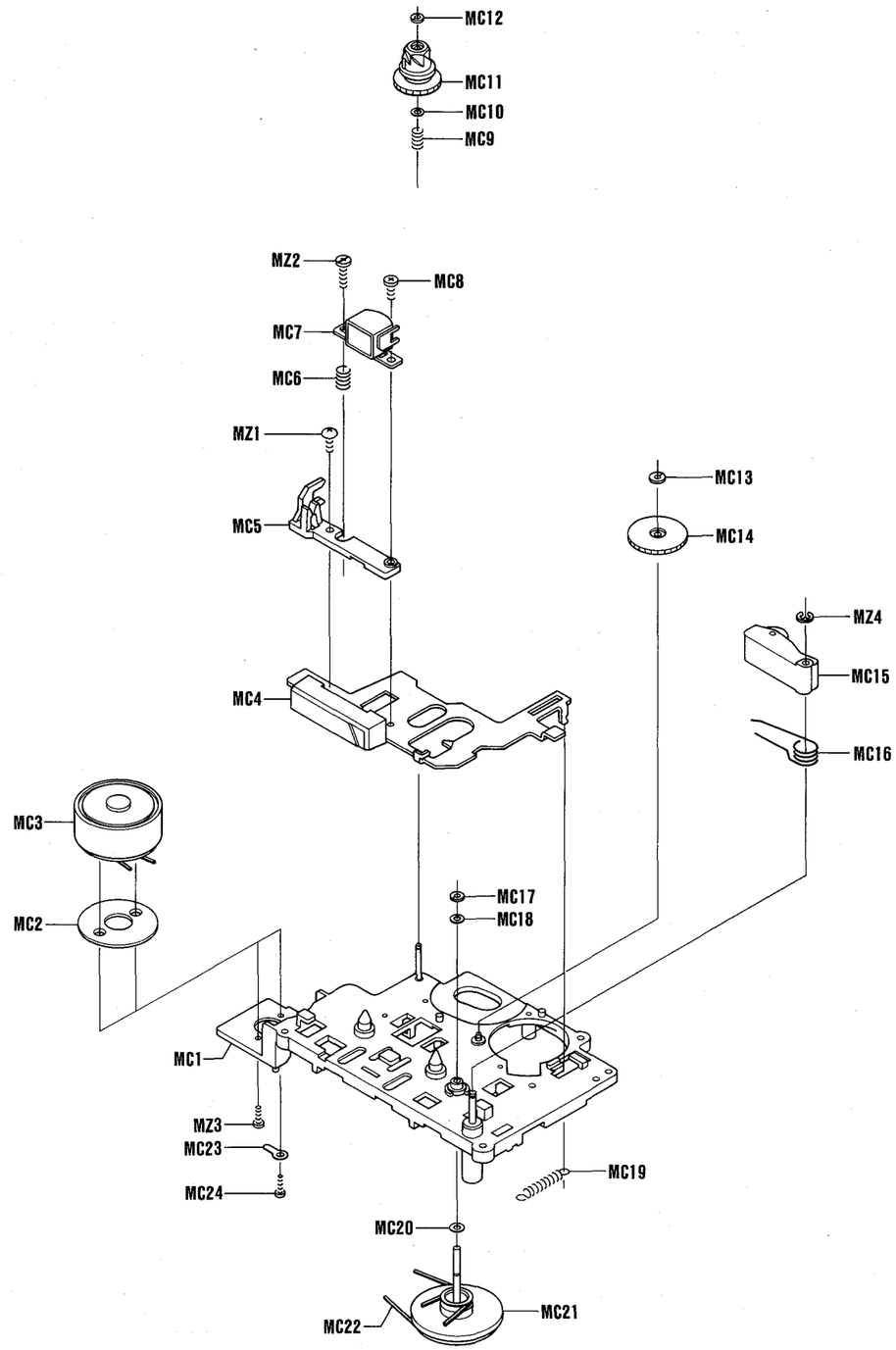
MECHANISM PARTS LIST

Ref. No.	Part No.	Description	Q'ty
	MECHANISM		
MC1	141-0-3119-25000	Chassis Assy	1
MC2	141-2-4459-33400	Cushion Motor	1
MC3	4-5279-71470	Motor [M1]	1
MC4	141-0-7419-42600	Lever Play Assy	1
MC5	141-2-3529-46200	Head Base	1
MC6	141-2-8519-47400	Spring Head	1
MC7	141-4-2429-72390	Playback Head [HD1]	1
MC8	141-2-4219-24500	PC Screw, Pan Hd.-3, +M2.0x4.0	1
MC9	141-2-8559-02500	Spring Supply	1
MC10	141-2-4539-18100	Washer, M1.6x3.0x0.13	1
MC11	141-0-5369-01901	Reel Supply Assy	1
MC12	141-2-4539-17500	Washer, M1.25x3.0x0.25	2
MC13	141-2-4539-30600	Washer, M1.25x4.0x0.25	1
MC14	141-2-5519-47200	Gear F.FWD	1
MC15	141-0-5459-02000	Pinch Roller Assy	1
MC16	141-2-8529-25800	Spring Pinch Roller	1
MC17	141-2-4539-35000	Washer, M1.6x3.2x0.4	1
MC18	141-2-4539-27601	Washer, M2.1x3.5x0.13	2
MC19	141-2-8519-07500	Spring Lever Stop	1
MC20	141-2-4539-19800	Washer, M2.1x5.0x0.13	2
MC21	141-0-5219-11900	Flywheel Assy	1
MC22	141-2-5649-25700	Belt Drive	1
MC23	141-2-4729-09200	Lug	1
MC24	141-2-4219-10600	Screw, +M1.7x4.0	1
MC25	141-0-7419-39601	Lever Stop Assy	1
MC26	141-0-7419-39501	Lever Rewind Assy	1
MC27	141-2-7439-31000	Arm Review	1
MC28	141-2-8529-14600	Spring Plate Lock	1
MC29	141-2-3519-64901	Plate	1
MC30	141-2-8549-06800	Spring Plate Lock	1
MC31	141-2-8519-71200	Spring	2
MC32	141-2-4219-29900	Screw, Pan Hd. Tapping-B +M1.7x4.0	4
MC33	141-2-7439-31100	Arm Power	1
MC34	141-0-5319-07302	Reel Take-up Assy	1
MC35	141-2-8529-11700	Spring Cancel ASO	1
MC36	141-0-3519-21500	Plate Reel Assy	1
MC37	141-2-4539-13000	Washer, M1.6x4.0x0.13	1
MC38	141-2-5519-47000	Pulley Take-up	1
MC39	141-2-5649-09900	Belt Take-up	1
MC40	141-2-8549-18200	Spring	1
MC41	141-2-7439-30700	Arm Take-up	1
MC42	141-2-5519-47500	Gear Take-up	1
MC43	141-2-4539-15700	Washer, M1.5x3.5x0.4	1
MC44	141-0-7419-39401	Lever Fast Assy	1
MC45	141-2-5519-47100	Gear Fast	1
MC46	141-2-7319-57300	Plate Lock	1
MZ1	101-3-1802-00311	Screw, Truss Hd., +M2.0x3	1
MZ2	101-3-3702-00611	Screw, Bind Hd., ±M2.0x6	1
MZ3	128-3-1317-03518	PI Screw-3, Pan Hd., +M1.7x3.5	1
MZ4	112-3-1301-50082	E Ring, M1.5	1

NOTES:
1. Parts order must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and resistors must be multiple of 10 pcs.

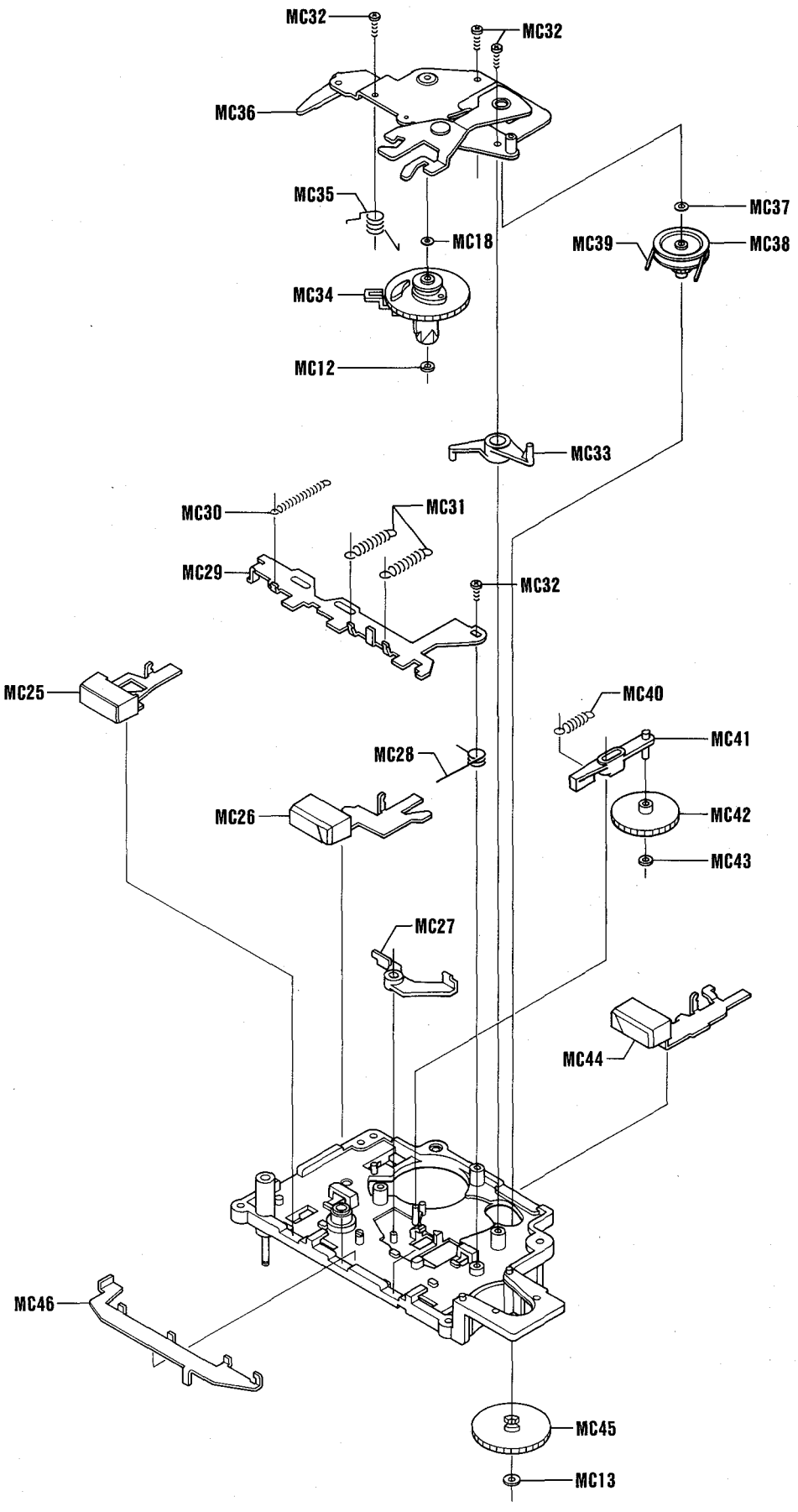
MECHANISM EXPLODED VIEW

(Chassis Top)



MECHANISM EXPLODED VIEW(Continued)

(Chassis Bottom)



P.C.BOARD PARTS LIST

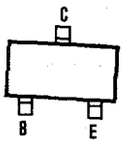
Ref. No.	Part No.	Description				Q'ty
	AMPLIFIER P.C.B. ASSY					
PCB1	141-0-1939-14001	Amplifier P.C.B. Assy				1
	141-2-4729-05000	Staple, 5mm				17
J1	4-2359-77750	Jack 3P (Headphones)				1
J2	4-2359-78080	Ext. Power Jack				1
S1	4-2319-76920	Leaf Switch (Power)				1
P401	4-2229-76480	Potentiometer, B-2.2kΩ				1
VR01	4-2229-75580	Rotary Volume (Volume/A-20kΩ)				1
TH401	4-2219-70540	Thermistor, 200				1
or	204-5-9000-00200	Thermistor, SDT 20				1
IC301	4-2069-75070	IC, BA 3506 A				1
IC401	207-5-1895-52310	IC, LA 5523				1
C101	CC1-0-2500-KE01R	Ceramic	0.001μF	50V	±10%	1
C102	CD3-3-663A-0001V	Electrolytic	33μF	6.3V		1
C103	CM2-2-3500-J00BV	Mylar	0.022μF	50V	±5%	1
C104	CD4-7-5500-0001V	Electrolytic	4.7μF	50V		1
C105	CD4-7-5500-0001V	Electrolytic	4.7μF	50V		1
C106	CC1-0-2500-KE01R	Ceramic	0.001μF	50V	±10%	1
C107	CT1-0-563A-M00AV	Tantalum	1μF	6.3V	±20%	1
C108	CD2-2-7100-0001V	Electrolytic	220μF	10V		1
C201	CC1-0-2500-KE01R	Ceramic	0.001μF	50V	±10%	1
C202	CD3-3-663A-0001V	Electrolytic	33μF	6.3V		1
C203	CM2-2-3500-J00BV	Mylar	0.022μF	50V	±5%	1
C204	CD4-7-5500-0001V	Electrolytic	4.7μF	50V		1
C205	CD4-7-5500-0001V	Electrolytic	4.7μF	50V		1
C206	CC1-0-2500-KE01R	Ceramic	0.001μF	50V	±10%	1
C207	CT1-0-563A-M00AV	Tantalum	1μF	6.3V	±20%	1
C208	CD2-2-7100-0001V	Electrolytic	220μF	10V		1
C301	CD3-3-663A-0001V	Electrolytic	33μF	6.3V		1
C302	CD2-2-7100-0001V	Electrolytic	220μF	10V		1
C303	CD2-2-7100-0001V	Electrolytic	220μF	10V		1
C304	CD2-2-7100-0001V	Electrolytic	220μF	10V		1
C401	CD2-2-5500-0001V	Electrolytic	2.2μF	50V		1
C402	CD2-2-6160-0001V	Electrolytic	22μF	16V		1
R101	401-029-9706	Carbon	220Ω	1/8W	±5%	1
R102	401-032-0608	Carbon	5.6kΩ	1/8W	±5%	1
R103	401-029-2004	Carbon	150kΩ	1/8W	±5%	1
R201	401-029-9706	Carbon	220Ω	1/8W	±5%	1
R202	401-032-0608	Carbon	5.6kΩ	1/8W	±5%	1
R203	401-029-2004	Carbon	150kΩ	1/8W	±5%	1
R301	401-031-8308	Carbon	5.6Ω	1/8W	±5%	1
R302	401-028-3200	Carbon	1kΩ	1/8W	±5%	1
R401	401-029-7900	Carbon	200Ω	1/8W	±5%	1
R402	401-031-2405	Carbon	3.9kΩ	1/8W	±5%	1
R403	401-031-6601	Carbon	4.7kΩ	1/8W	±5%	1
R404	401-032-4606	Carbon	6.8kΩ	1/8W	±5%	1
	GRAPHIC EQUALIZER P.C.B. ASSY					
PCB2	141-0-1939-14130	Graphic Equalizer P.C.B. Assy				1
	141-0-1939-15420	PCB, Graphic Equalizer				1
	4-2262-27420	FPC, Graphic Equalizer				1
	141-2-2899-55800	Adhesive Sheet				1
	141-2-4359-42400	Insulator				1
VR2	4-2229-76390	Slide Volume (Equalizer/W-100kΩ)				1
Q501	203-5-4422-81216	Transistor, 2SC2812				1
Q601	203-5-4422-81216	Transistor, 2SC2812				1
C501	CG3-9-1500-KH00B	Chip Capacitor	390pF	50V	±10%	1
C502	CG1-8-2500-KH00B	Chip Capacitor	0.0018μF	50V	±10%	1
C503	CG2-7-2500-KH00B	Chip Capacitor	0.0027μF	50V	±10%	1
C504	CG8-2-2500-KH00B	Chip Capacitor	0.0082μF	50V	±10%	1
C505	CG1-2-3250-KH00B	Chip Capacitor	0.012μF	25V	±10%	1
C506	CG1-0-3250-KH00B	Chip Capacitor	0.01μF	25V	±10%	1
C601	CG3-9-1500-KH00B	Chip Capacitor	390pF	50V	±10%	1

Ref. No.	Part No.	Description				Q'ty
C602	CG1-8-2500-KH00B	Chip Capacitor	0.0018μF	50V	±10%	1
C603	CG2-7-2500-KH00B	Chip Capacitor	0.0027μF	50V	±10%	1
C604	CG8-2-2500-KH00B	Chip Capacitor	0.0082μF	50V	±10%	1
C605	CG1-2-3250-KH00B	Chip Capacitor	0.012μF	25V	±10%	1
C606	CG1-0-3250-KH00B	Chip Capacitor	0.01μF	25V	±10%	1
C701	CG1-0-4250-ZI00B	Chip Capacitor	0.1μF	25V	+80,-20%	1
R501	401-038-6406	Chip Resistor	4.7kΩ	1/10W	±5%	1
R502	401-037-6803	Chip Resistor	12kΩ	1/10W	±5%	1
R503	401-038-9209	Chip Resistor	6.8kΩ	1/10W	±5%	1
R504	401-038-6406	Chip Resistor	4.7kΩ	1/10W	±5%	1
R505	401-038-6406	Chip Resistor	4.7kΩ	1/10W	±5%	1
R506	401-038-0800	Chip Resistor	22kΩ	1/10W	±5%	1
R507	401-037-9309	Chip Resistor	18kΩ	1/10W	±5%	1
R508	401-037-9309	Chip Resistor	18kΩ	1/10W	±5%	1
R509	401-038-3702	Chip Resistor	33kΩ	1/10W	±5%	1
R510	401-038-0800	Chip Resistor	22kΩ	1/10W	±5%	1
R511	401-037-5806	Chip Resistor	1MΩ	1/10W	±5%	1
R601	401-038-6406	Chip Resistor	4.7kΩ	1/10W	±5%	1
R602	401-037-6803	Chip Resistor	12kΩ	1/10W	±5%	1
R603	401-038-9209	Chip Resistor	6.8kΩ	1/10W	±5%	1
R604	401-038-6406	Chip Resistor	4.7kΩ	1/10W	±5%	1
R605	401-038-6406	Chip Resistor	4.7kΩ	1/10W	±5%	1
R606	401-038-0800	Chip Resistor	22kΩ	1/10W	±5%	1
R607	401-037-9309	Chip Resistor	18kΩ	1/10W	±5%	1
R608	401-037-9309	Chip Resistor	18kΩ	1/10W	±5%	1
R609	401-038-3702	Chip Resistor	33kΩ	1/10W	±5%	1
R610	401-038-0800	Chip Resistor	22kΩ	1/10W	±5%	1
R611	401-037-5806	Chip Resistor	1MΩ	1/10W	±5%	1

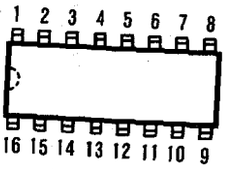
NOTES:

1. Parts order must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and resistors must be multiple of 10 pcs.

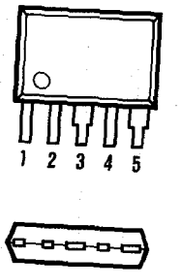
IC & TRANSISTOR LEAD IDENTIFICATION

TRANSISTOR	FRONT VIEW	BOTTOM VIEW
2SC2812		
TERMINAL NAMES		
B → BASE C → COLLECTOR E → EMITTER		

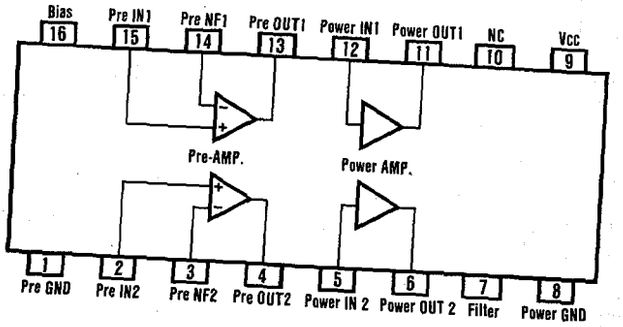
BA3506A BOTTOM VIEW



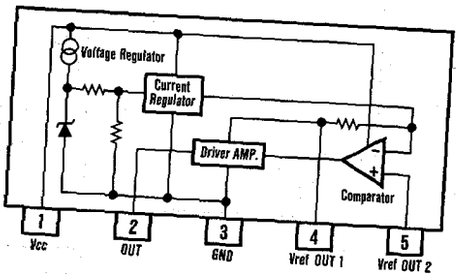
LA5523 FRONT/BOTTOM VIEWS



BA3506 BLOCK DIAGRAM

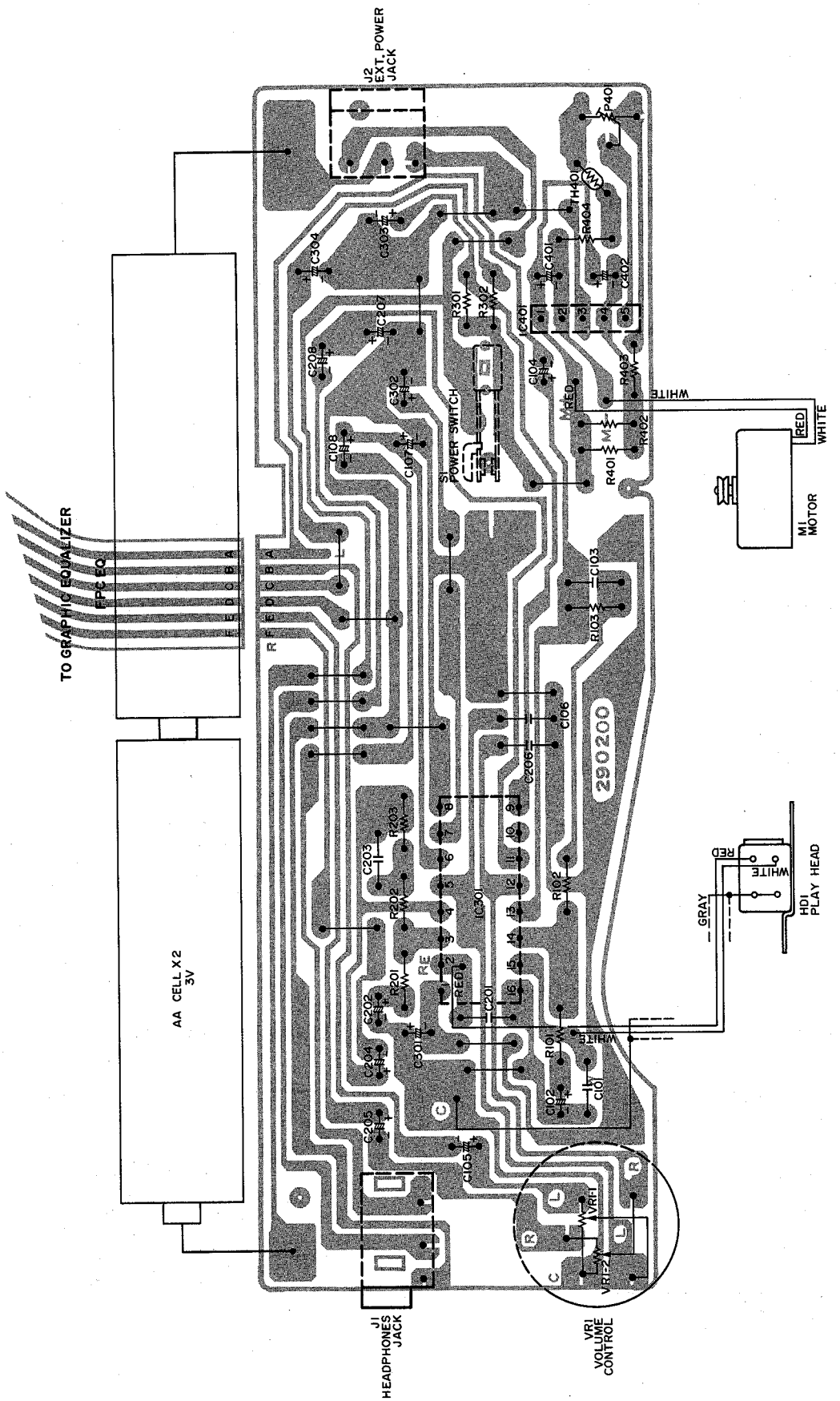


LA5523 BLOCK DIAGRAM



AMPLIFIFER P.C.BOARD & WIRING DIAGRAM

(BOTTOM VIEW)



Voltage of IC

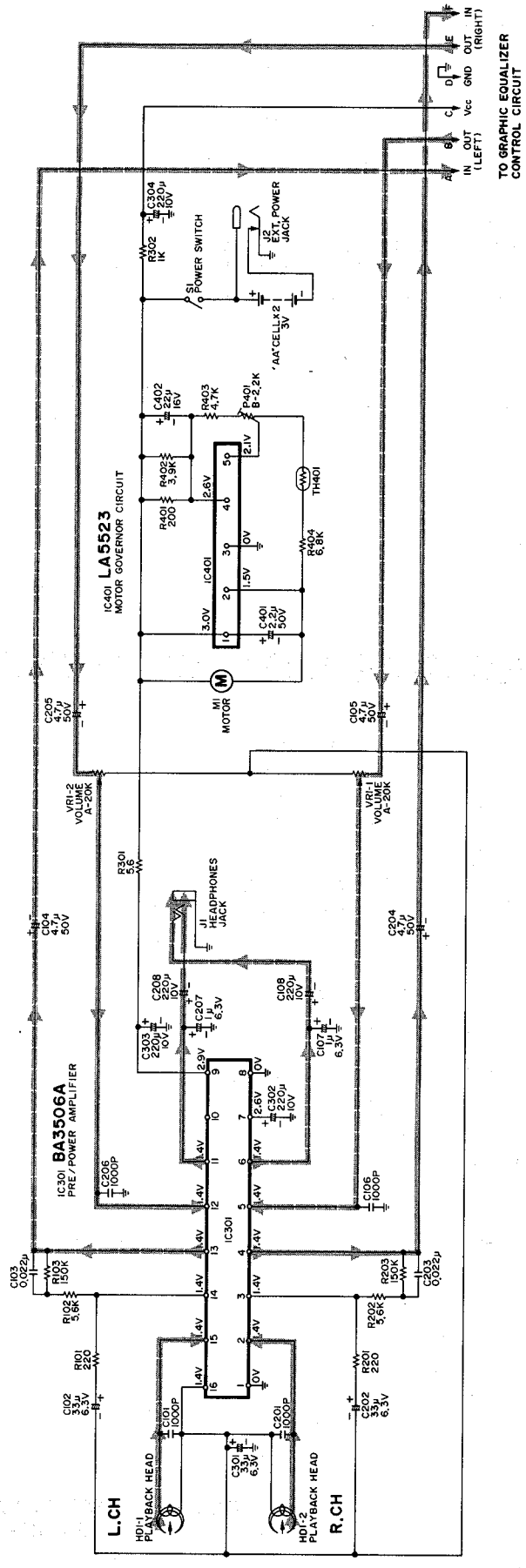
IC301

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Playback	0	1.4	1.4	1.4	1.4	1.4	2.6	0	2.9	–	1.4	1.4	1.4	1.4	1.4	1.4

IC401

	1	2	3	4	5
Playback	3.0	1.5	0	2.6	2.1

SCHEMATIC DIAGRAM

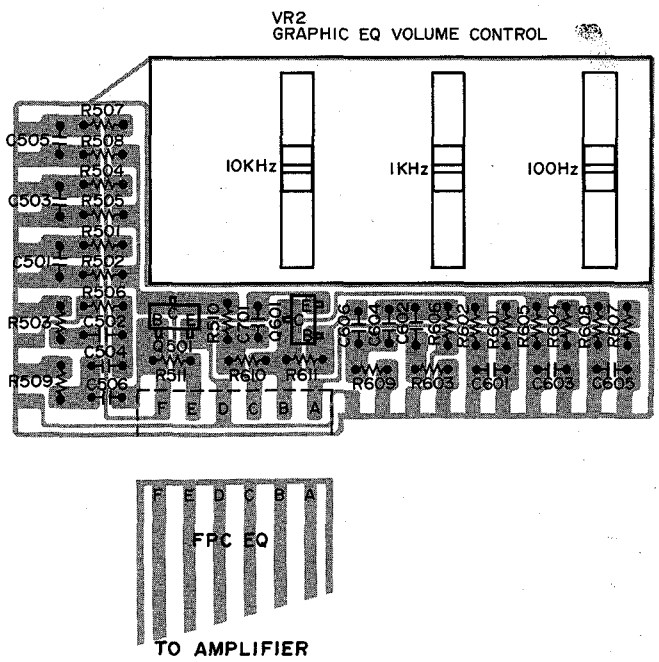


Signal flow of **RIGHT CHANNEL**

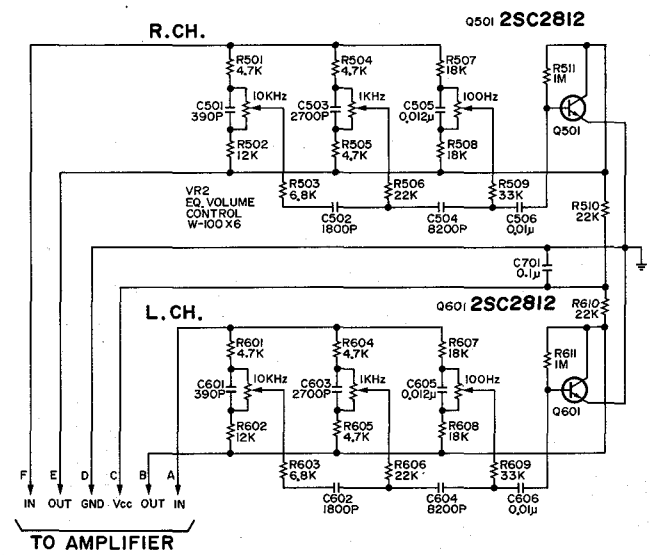
Signal flow of **LEFT CHANNEL**

No.	Name	Position
S1	Power Switch	OFF

GRAPHIC EQ. CONTROL P.C.BOARD



GRAPHIC EQ. CONTROL SCHEMATIC DIAGRAM



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